

NOTES ON AUSTRALIAN DIPTERA. No. vii.

By J. R. MALLOCH.

(Communicated by Dr. E. W. Ferguson.)

(Twenty-three Text-figures.)

[Read 30th September, 1925.]

In this paper I present notes on some previously described species and descriptions of some others that appear to be new to science. With the exception of one species which belongs to the British Museum, all the types will be sent to Dr. E. W. Ferguson, from whom most of them were received for identification.

Family Sepsidae.

The members of this family have a characteristic ant-like appearance that readily distinguishes them from most of their allies. Hendel's most recent papers dealing with the acalyptrate Diptera give prominence to the presence or absence, divergence or convergence, of the postvertical pair of bristles as characters for the separation of the families. While one must admit that these bristles are quite important as criteria in grouping the insects, a careful scrutiny of the families discloses the fact that, just as is the case with other characters, there are some departures from the general rule here. Hendel ascribes to Sepsidae divergent postvertical bristles, but in one of his papers he parenthetically refers *Eurychoromyia* Hendel to the family, despite the fact that it lacks these bristles. I rather incline to doubt the propriety of assigning this genus here, but have not seen it, so cannot give a definite opinion on the point. However, there is one undoubted sepsid amongst the Australian material before me, which lacks the postverticals, and for which I herein propose a new genus. The preapical tibial bristle is stated to be absent by Hendel, but I am confident that in some species it is present, though small and weak, as I can detect a setula or short bristle in practically the normal position in these.

Strictly speaking the family is distinguished from its nearest allies by the distinct auxiliary vein, which is complete and well separated from the first vein; the presence of vibrissae; bare, or almost bare, arista; absence of presutural dorsocentral bristles; presence of one or more long setulose hairs on lower margin of metathoracic spiracle; incomplete sixth wing vein; lack of pteropleural and sternopleural bristles; and the vestigial palpi. The postvertical bristles are absent or present; when present they are divergent; orbit with, at most, one distinct bristle.

In 1906 de Meijere published a revision of the Indo-Australian species of *Sepsis* in which he recorded two species from Australia (*Ann. Mus. Nat. Hungar.*, vol. 4, p. 165). I have both of these species before me, as well as one he described from Singapore, but did not record from Australia, and in addition have three related forms as yet undescribed, for two of the latter having to propose new genera in this paper.

All the known species of the family occur in the adult stage upon garbage, carrion, or vegetation, some being very abundant on flowers; the larvae feed in manure and carrion. The adults are very rarely found in houses, so do not come into contact with human food as a rule, and thus may be considered as innocuous.

Key to known Australian Genera.

1. Postvertical bristles lacking; each orbit with one strong bristle *Xenosepsis*, n. gen.
Postvertical bristles present, divergent; no distinct orbital present 2
2. Basal cells of wings separated by a strong vein *Sepsis* Fallén
Basal cells of wings not separated (Fig. 1); mesopleura with a strong bristle on hind margin above *Australosepsis*, n. gen.

Genus SEPSIS Fallén.

This cosmopolitan genus is represented by four species in the material now before me. One of these, *hirsuta* de Meijere, has, like *violacea* Meigen, but one distinct pair of thoracic dorsocentral bristles, and has also a strong mesopleural bristle as in *Australosepsis*, characters which might be utilized to separate them subgenerically from the other species, but there is nothing to be gained by adopting this course unless in a consideration of the species from all over the world, so I leave the matter to some future worker to decide.

I give below a key for the identification of the available Australian species.

Key to Species.

1. Thorax with one pair of strong dorsocentral bristles; frons quite conspicuously haired; dorsum of thorax evenly haired, most noticeably so in male; fore femur of female with anteroventral and posteroventral series of short black spines on apical half, of male with similar series, which are confined more to median third and are not situated upon raised bases; wing without a black spot at apex of second vein; legs more noticeably hairy than in other species; mesopleura with a distinct bristle on hind margin above *hirsuta* de Meijere
Thorax with two pairs of strong dorsocentral bristles; frons bare except on orbits; disc of mesonotum with very inconspicuous hairs, which are practically all confined to acrostichal area and in line with dorsocentrals; fore femur in female without well developed spines, of male with distinct spines, some of which are on distinctly elevated bases; mesopleura without a distinct bristle 2
2. Wing normally with a black spot at apex of second vein; no acrostichal setulae present behind level of anterior pair of dorsocentrals; veins 3 and 4 of wings not at all, or only slightly, convergent apically 3
Wing without a black spot at apex of second vein; acrostichal setulae continued sparsely well behind transverse line of anterior dorsocentrals; scutellum not opaque velvety-black, but black, coloured as disc of thorax; veins 3 and 4 quite distinctly convergent apically *coprophila* de Meijere
3. Black species, the scutellum velvety opaque-black, with apex white dusted; fore femur in both sexes without prominent hairs on anteroventral surface basally, with 1-3 short black setulae *plebeia* de Meijere
Fulvous yellow species, scutellum yellow; fore femur of male with numerous black hairs on basal half of anteroventral surface *hirtifemur*, n. sp.

SEPSIS HIRSUTA de Meijere. Text-figures 2, 3.

This species is similar to *violacea* Meigen in having but one pair of dorsocentral bristles and in possessing a mesopleural bristle. It differs, however, in the spinose fore femur of the female, in which respect it is like *Nemopoda* species. The preponderating colour in most specimens is fulvous yellow, with the dorsum of thorax and of abdomen more frequently dark; some specimens are almost entirely black. The fore femur of male is as in Figure 2, that of female as in Figure 3. I have not seen a specimen with a dark subapical spot on wing.

Length, 4-6 mm.

Originally described from Parramatta and Botany Bay, N.S.W. I have before me many specimens of both sexes from Sydney and Como, N.S.W.

SEPSIS COPROPHILA de Meijere.

I have before me one female which I identify as this species. The characters cited in the key, coupled with de Meijere's description in the paper already referred to, should enable anyone to identify the species.

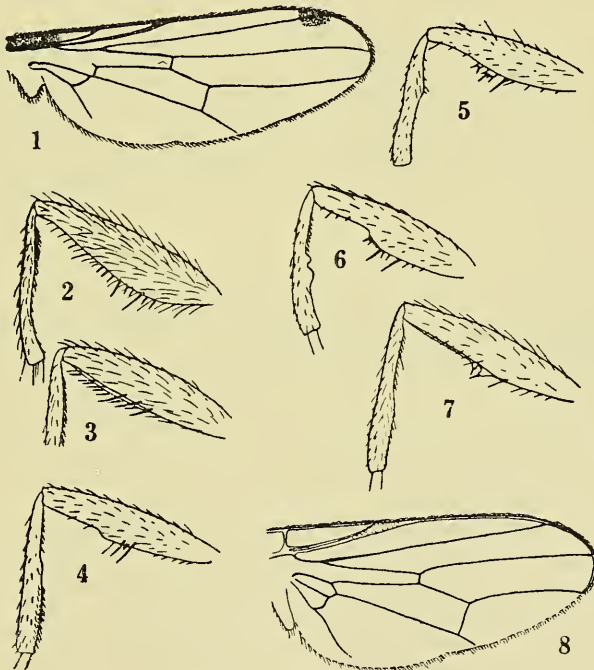
Originally described from Singapore. I have it from Eidsvold, Queensland.

SEPSIS PLEBEIA de Meijere. Text-figure 4.

A small black species closely resembling the European *cynipsea* Linné. The fore femur lacks the rather dense hairs on the basal half of anteroventral surface so evident in *hirtifemur*, and the armature as seen from behind is as shown in Figure 4. The female has no fore femoral spines.

Length, 3-4 mm.

Originally described from Sydney. I have it from Sydney, Como, Cronulla, and Botany Bay, N.S.W.



Text-figure 1.—*Australosepsis fulvescens*, n. gen. et sp. Wing of male.

Text-figure 2.—*Sepsis hirsuta* de Meijere. Fore femur of male.

Text-figure 3.—*Sepsis hirsuta* de Meijere. Fore femur of female.

Text-figure 4.—*Sepsis plebeia* de Meijere.

Text-figure 5.—*Sepsis hirtifemur*, n. sp. Fore femur and tibia of male.

Text-figure 6.—*Australosepsis fulvescens*, n. gen. et sp. Fore femur and tibia of male.

Text-figure 7.—*Xenosepsis sydneyensis*, n. sp. Fore femur of male.

Text-figure 8.—*Piophila* ———. Wing.

3 or 4 anterior bristles, mid tibia with one anteroventral and 3 or 4 posterior bristles, mid tarsi with a number of black bristles on basal two segments; hind femur usually with an anterior bristle beyond middle; hind tibia slender on basal half, thickened beyond, and with three bristles at middle, one anteroventral, one anterodorsal and one posterodorsal. Wing as in Figure 1, the crossveins sometimes a little more approximated.

Length, 3-4 mm.

Type and three paratypes, Sydney, N.S.W., 17.2.24; allotype. One paratype, Cronulla, N.S.W.

AUSTRALOSEPSIS FULVESCENS var. *ATRATULA*, n. var.

Male and female.—Differ from the type form in having the thorax and abdomen black; the femora and tibiae of mid and hind legs are largely black and apices of tarsi fuscous.

Structurally as in typical form.

Length, 3-4 mm.

Type, male, allotype, 2 male and 3 female paratypes, Sydney, 17.2.24; one male, Cronulla, N.S.W., Dec., 1924 (H. Petersen).

Genus *XENOSEPSIS* novum.

Generic characters.—Differs from all Sepsidae known to me in lacking the postvertical bristles. Each frontal orbit with one prominent bristle which is directed outward over eye; face carinate; one outstanding vibrissa present; head otherwise as in *Sepsis*. Thorax as in *Sepsis*; mesopleura with one bristle; dorso-centrals one pair. Legs as in *Sepsis*, but the preapical tibial bristle is quite evident, and there is a short longitudinal slit on dorsal surface of hind tibia near base in male. This last character may be sexual and not of generic import. Venation of wings as in *Sepsis*.

Genotype, *Xenosepsis sydneyensis*, n. sp.

XENOSEPSIS SYDNEYENSIS, n. sp. Text-figure 7.

Male.—Shining black, dorsum of thorax shagreened, that of abdomen polished and slightly purplish. Antennae and centre of face yellowish. Legs black, coxae, trochanters, fore femora and tibiae, bases of other femora, and tarsi, except their apices, yellowish. Wings without dark preapical spot. Halteres yellow.

Cheek almost linear; frons bare. Thorax with a pair of short bristles on acrostichal lines about midway from suture to dorsocentrals; upper part of sternopleura white dusted; scutellum short, apical bristles long, basal pair microscopic. Abdomen not noticeably constricted at second tergite, bristles evident only on the apical tergites, two at apex quite prominent. Fore femur as in Figure 7; mid femur with some short anterior setulae; mid tibia with an anteroventral bristle beyond middle; basal segment of mid and hind tarsi setulose; hind femora and tibiae without median bristles. Inner crossvein at about one-third from apex of discal cell; veins 3 and 4 slightly convergent apically.

Length, 4 mm.

Type and two paratypes, Sydney, N.S.W., 8 and 14.1.23.

Family *Piophilidae*.

This family has much the same appearance as Sepsidae, but they are not so slender and ant-like. They differ in venation of the wing, as shown in Figure 8, the auxiliary vein being practically fused with first at its apex; the costa is almost

broken just in front of apex of this vein. Palpi large; vibrissae strong; no setulae on hypopleura; preapical tibial bristle undeveloped; postvertical bristles divergent.

I have before me two species referable to this family, both of which appear to be European in origin. I give below a diagnosis for their identity.

It appears probable that the chaetotactic characters cited below will serve some taxonomist as criteria for the division of this genus into at least subgenera.

- A. Frons without orbital bristles; humeral and sternopleural bristles undeveloped; dorsum of thorax very sparsely haired, distinctly shagreened; fore tarsi not dilated *casei* Linné.
- AA. Frons with a pair of distinct orbital bristles; humeri and sternopleura each with two bristles; dorsum of thorax with numerous erect hairs, not shagreened; fore tarsi compressed and dilated *latipes* Meigen.

PIOPHILA CASEI Linné.

A greenish or bronzy black species. Anterior half of frons, the face, cheeks, and palpi yellow. Legs variable in colour, generally yellow, with most of fore femora, all of fore tibiae, and apices of hind femora and hind tibiae broadly, black, the fore tarsi sometimes all black, sometimes yellowish in middle.

The shagreened thorax with its comparative absence of hairs, transversely rugose scutellum, and undilated fore tarsi characterizes this species.

Length, 4.5 mm.

Localities.—Sydney, Blue Mts., Illawarra and Waterfall, N.S.W., and Eidsvold, Queensland.

This is the species known the world over in economic literature as the "Cheese Skipper", from the lively actions of the larvae, which feed in cheese and preserved meats. Sometimes the flies occur in great numbers in provision houses.

PIOPHILA LATIPES Meigen.

I identify as this species a female which agrees with Meigen's description so well that there is no doubt in my mind that I am correct. It is very closely related to *nigriceps* Meigen. The latter, however, has no strong orbital bristles and is different in colour and structure. Legs yellow, fore pair black except the coxae, trochanters, bases of femora, and knees.

Length, 3.5 mm.

Locality.—Sydney, N.S.W., 14.4.25.

Family Sapromyzidae.

Genus SAPROMYZA Fallén.

I have already defined this genus and *Sapromyzosoma* in one of my papers on Australian Diptera. I now present descriptions of a few species of each genus, some of them previously undescribed.

One species herein included, *aberrans*, might be placed in a separate subgenus from the others because of the presence of a distinct bristle behind the supra-alar bristle. I have noted the presence of this bristle in many Oriental and South American species of this genus and *Minettia*, but I have not yet decided the true significance of the character and therefore leave this species in *Sapromyza* in the meantime. The bristle referred to must not be confused with the posterior intra-alar bristle, the presence of which distinguishes *Minettia* from *Sapromyza*, both bristles being present in certain species of the former genus which I have seen.

SAPROMYZA ABERRANS, n. sp.

Female and male.—Head opaque clay-yellow, frons with a transverse dark grey mark extending between inner vertical bristles, and an irregular brown mark on each orbit, the two meeting on middle of frons; a dark mark between each antenna and eye; centre of face fuscous; apex of third antennal segment darkened; palpi black. Thorax clay-coloured, dorsum with four broad brownish vittae, the laterals irregular, subdivided by a grey vitta behind suture, the intervening areas, and especially the median one, greyish pruinulent; pleura with a broad blackish vitta over upper half, divided into two anteriorly, one branch above, the other below the spiracle, and a narrower vitta on upper part of sternopleura; scutellum fuscous, sides appearing darker than disc; postnotum clay-yellow. Abdomen concolorous with thorax, bases of tergites dark brown. Legs clay-yellow, fore and mid femora almost entirely, hind femora and all tibiae at apices, blackened. Wings brownish hyaline. Halteres whitish.

All frontal bristles strong and long; arista rather long haired; thorax with three pairs of strong postsutural dorsocentral and one pair of prescutellar acrostichal bristles; scutellum flattened, bristles subequal. Genitalia of female not spined. Fore femur without anteroventral comb; hind femur without preapical anteroventral bristle; preapical tibial bristle present. Inner crossvein at or slightly before middle of discal cell; penultimate section of fourth vein fully three-fourths as long as ultimate section.

Length, 5-6 mm.

Type, female, and allotype, Eungella Ra., 45 miles west of Mackay, Queensland, 1400-2400 feet, 25.9.23 (Goldfinch).

The specimen listed as allotype is in poor condition and teneral, but evidently belongs to this species.

SAPROMYZA PUNCTISETA, n. sp.

Male.—Head testaceous; orbits, frontal triangle, and the lines on which the frontal orbital bristles are situated yellowish-white dusted; ocellar spot fuscous; antennae and palpi orange-yellow; arista fuscous, face slightly darker in centre than on sides. Thorax darker than head, and densely lead-grey pruinulent, apex of scutellum and sutures of pleura paler, a small dark brown dot at base of each hair and bristle on dorsum. Abdomen brown, becoming greyish apically, apices of tergites yellowish. Legs testaceous yellow, fore femora, fore tibiae, apices of mid and hind tibiae, and of all tarsi brown or fuscous, the hind femora at apices and mid and hind tibiae near bases sometimes brownish. Wings hyaline. Halteres yellow.

Head as in *victoriae*. Thorax with three pairs of postsutural dorsocentrals and four series of intradorsocentral setulae, the median pairs quite strong from behind suture to scutellum; scutellar bristles equal. Legs and wings as in *victoriae*.

Length, 4 mm.

Type and two paratypes mounted on same card, Victoria (C. French). Brit. Mus.

SAPROMYZA VICTORIAE, n. sp.

Male.—Yellow testaceous, abdomen slightly shining. Head with whitish pruinulence on the narrow frontal orbits and on the lines of orbital bristles, the two stripes separated by a line of the reddish-yellow frontal colour, the frontal triangle forming a narrow whitish streak to anterior margin; face paler than

frons, whitish pruinose on sides, and with a faint dark vertical central line; antennae reddish-yellow; arista fuscous; palpi yellow. Thoracic dorsum with four broad brownish vittae, the outer one on each side between submedian one and lateral margin, the median pair continued over scutellum; pleura not vittate. Apices of abdominal tergites a little paler than bases. Legs yellowish testaceous, fore femora, apices of all tibiae and a ring near middle of at least mid and hind tibiae brownish. Wings hyaline. Halteres yellow.

Anterior fronto-orbital bristles rather far removed from eye; ocellars small; arista subnude; eye higher than long, narrowed below; cheek not as high as width of third antennal segment; palpi slender. Thorax with three pairs of postsutural dorsocentral, and one pair of prescutellar acrostichal, bristles, six series of intradorsocentral setulae present anteriorly. Fore femur without anteroventral comb; preapical tibial bristle present on all legs, long on fore pair; hind femur without preapical anteroventral bristle. Inner crossvein at middle of discal cell; last section of fourth vein nearly twice as long as preceding section; outer crossvein at about its own length from apex of fifth vein.

Length, 4 mm.

Type, Melbourne, Victoria (G. F. Hill).

SAPROMYZA SPINIGERA, n. sp.

Female.—Reddish testaceous, slightly shining, the surface obscured by yellowish-grey dusting, thoracic dorsum with two faint, slender, brownish, submedian vittae; abdomen more greyish than thorax; orbits and frontal triangle greyish, much paler than other parts of frons; palpi blackened apically. Wings yellowish-hyaline.

All frontal bristles long and strong, surface hairs numerous but short on sides and anteriorly; arista plumose; face with a convexity in centre above mouth; cheek about as high as width of third antennal segment. Thorax with four pairs of strong dorsocentral, and four pairs of quite conspicuous acrostichal, bristles, the anterior pair of both series in front of suture; a short bristle mesad of the presutural intra-alar bristle; an irregular series on short hairs between the acrostichals and dorsocentrals; scutellum flattened above, bare on disc, bristles subequal; both sternopleurals strong. Abdomen stout, third visible tergite with the bristles on lateral portions of hind margin denser and longer than usual; fourth tergite with quite dense long black setulose hairs or bristles on entire length of exposed portion at the lateral curves which are directed upward and outward; genital segment not spinose. Fore femur with an anteroventral comb; hind femur without an anteroventral preapical bristle; preapical tibial bristle present. Inner crossvein at middle of discal cell; sixth vein almost complete, faint apically.

Length, 5 mm.

Type, Ararat, Victoria (G. F. Hill).

An aberrant species, possessing as it does a bristle mesad of the presutural intra-alar, and a very long sixth vein.

SAPROMYZA HIRTIVENTRIS, n. sp.

Male and female.—Similar to preceding species in colour, differing in having the stripe between the faint submedian vittae grey or fuscous, the palpi yellow, frontal orbits and triangle less definitely greyish, and the abdomen more greyish fuscous. Tarsi dark at apices.

Arista sparsely pubescent; frons without fine surface hairs; face not convex. Thorax with the same dorsocentrals as in last species, but the acrostichals, except

the prescutellar pair, very short, the intradorsocentral area with four series of hairs, short in front; extra bristle mesad of the presutural intra-alar present. Female with a large section in middle of second and third visible tergites furnished with rather dense, fine, moderately long, erect, black hairs, the other hairing and bristling normal. Internal processes of male genitalia (3) long, heavily chitinized, glossy black. Legs and wings as in *spinigera*.

Length, 7-8 mm.

Type, female, and allotype, Ararat, Victoria (G. F. Hill). Paratypes, four, Bamawm, Victoria (G. F. Hill).

SAPROMYZA FUSCOCOSTATA, n. sp.

Female.—Shining fulvous yellow. Third antennal segment, arista, and a small ocellar spot, fuscous. Thoracic dorsum with two fuscous vittae along the lines of dorsocentrals. Abdomen with a series of dark central spots apically, one to each tergite. Legs fulvous yellow, fore femora, all tibiae, entire fore tarsi, and apices of mid and hind tarsi, black. Wings yellowish, costa from base to apex of fourth vein, and outer crossvein, narrowly fuscous brown. Halteres yellow.

Frontal orbits shining, well separated from eyes anteriorly, the anterior bristle smaller than the posterior one; postvertical bristles long; ocellars minute; face convex; parafacials white pruinose; antennae normal; arista pubescent; cheek about one-fourth as high as eye. Thorax with two pairs of strong and one pair of weak anterior postsutural dorsocentrals, one pair of strong prescutellar acrostichals, and six or eight series of intradorsocentral setulae; scutellum convex, the bristles equal; propleural bristle strong. Abdomen normal. Fore tibia with very poorly developed anteroventral preapical comb; fore tarsi not noticeably thickened; preapical tibial bristle present. Inner crossvein at middle of discal cell; ultimate section of fourth vein about equal to penultimate one.

Length, 6-7 mm.

Type and one paratype, Mittagong, N.S.W.

SAPROMYZA SCIOMYZINA Schiner.

This species was recorded from New Zealand by Schiner in his original description. This is an error similar to that which he made in his locality for *Poecilohetaerus schineri* Hendel (= *decora* Schiner), both of which were really from Australia. I unfortunately did not take *sciomyzina* into consideration when I described *atriventris* mihi in a recent paper on Australian Diptera, as no species that I have seen from the two regions are identical, and thus created a synonym, as the two names apply to the same species.

Genus *SAPROMYZOSOMA* Malloch.

This generic name had been used by Lioy many years ago, but I made use of it intentionally a year or two ago because it may possibly be the same as Lioy's and I am in doubt as to whether van der Wulp's name *Homoneura* is applicable to the same group. If my concept and Lioy's are identical the name *Sapromyzosoma* will remain, and if they are different, and my concept is the same as *Homoneura*, then the latter will replace *Sapromyzosoma*, a rather cumbersome name at best.

I believe that I have correctly identified one of Kertész's species, described from New Guinea, amongst those sent to me and redescribe it briefly herein, using characters in large part not mentioned in the original description. Black species

are very rare in this genus and the one now listed, *signatifrons*, has very much the appearance of a *Minettia*, mimicking, rather closely, *longipennis* Fallén, the genotype of that genus, except that the wings are not blackened at bases.

SAPROMYZOSOMA PROXIMELLA, n. sp.

Male.—Testaceous yellow, subopaque. Apical halves of palpi, ocellar spot, arista, and a mark on middle of occiput at neck, black; orbits not shining; antennae yellow. Thorax greyish pruinose, with a pair of faint brownish vittae along the lines of dorsocentral bristles, and a brownish mark alongside the upper margin of each humeral callosity. Abdomen unmarked. Legs clay-yellow. Wings hyaline, marked as in *horvathi* Kertész, both the crossveins and apices of second, third, and fourth veins with brown clouds, the one on outer crossvein most distinct on upper extremity, spotlike, those on apices of second and fourth veins distinctly proximad of the tips, that on third at tip. Halteres yellow.

Frons fully one-third of the head width; orbits not differentiated, the bristles long; ocellar pair long, parallel; arista plumose, longest hairs nearly as long as width of third antennal segment. Thorax with three pairs of strong postsutural dorsocentral bristles, and one pair of prescutellar acrostichals; intradorsocentral setulae in about six series; scutellum flat, bristles equal, apical pair cruciate. Fore femur with an anteroventral preapical comb. Inner crossvein of wing a little beyond middle of discal cell; last section of fourth vein very little longer than preceding section; outer crossvein at about half its own length from apex of fifth vein.

Length, 3 mm.

Type, Townsville, N. Queensland (G. F. Hill).

This species is very similar to *horvathi* Kertész and *brevicornis* Kertész, the wings being almost identical in venation and markings in all three (as Fig. 9). *S. horvathi* has the frons with a central blackish line, the third antennal segment blackened at apex, thorax more obviously vittate, and the abdomen with blackish fasciae at hind margins of the tergites. I have many specimens of *brevicornis* from Formosa before me; they all have the arista much shorter haired, the longest hairs being no more than one-third as long as the width of third antennal segment, and the thorax is even less noticeably vittate than in *proximella*.

Kertész described *horvathi* from New Guinea, *brevicornis* from Formosa.

SAPROMYZOSOMA PREAPICALIS, n. sp. Text-figure 9.

Male and female.—Similar to *proximella*, but the palpi are yellow, the thorax is less evidently dusted and without any traces of dark vittae, and the insect is larger. Wing as in Figure 9.

Length, 4.45 mm.

Type, male, allotype, and five paratypes, Waterfall, N.S.W., January, 1925 (H. Petersen).

SAPROMYZOSOMA ARMATA, n. sp.

Female.—Testaceous yellow, shining. Third antennal segment, arista, and apices of palpi, black; abdomen sometimes more or less fuscous in part, but this colour is evidently a discoloration. Wings hyaline, inner crossvein sometimes slightly darker than the other veins. Halteres yellow.

All frontal bristles strong, no evident surface hairs present; arista distinctly pubescent; face concave in profile. Thorax with three pairs of strong postsutural dorsocentral, and one pair of prescutellar acrostichal, bristles, the intradorso-

central setulae in about eight series; scutellum flat on disc, bristles equal. Abdomen stout, genital segment armed with about eight short stout bristles. Fore femur with preapical anteroventral comb; preapical tibial bristle present; inner crossvein distinctly beyond middle of discal cell; outer crossvein at not more than half its own length from apex of fifth vein; penultimate section of fourth vein about two-thirds as long as ultimate section.

Length, 5-7 mm.

Type, Ararat, Victoria (G. F. Hill). Paratypes, Seaford, Victoria (W. F. Hill); East Australia (Dr. T. P. Lucas; Brit. Mus.).

A male specimen which appears to belong to this species is from Eidsvold, Queensland. In this specimen the last section of fourth vein is barely longer than the preceding section.

This species agrees very well with the description of *fuscicornis* Macquart, but the antennae are given as black in that species and there is no mention of the colour of the palpi, which leads one to assume that they are yellow in *fuscicornis*.

SAPROMYZOSOMA SIGNATIFRONS (Kertész).

Male.—Glossy black. Frons subopaque, brownish-black, the anterior margin narrowly testaceous yellow, antennae brownish-yellow, arista fuscous; face slightly shining, with white pruinescence; palpi brownish. Thorax not vittate, almost without pruinescence. Legs fuscous, tibiae and tarsi testaceous yellow. Wings hyaline. Knobs of halteres black.

All frontal bristles strong; antennae normal; arista plumose; face slightly convex in middle vertically; cheek about as high as width of third antennal segment. Thorax with three pairs of strong postsutural dorsocentral, and one pair of prescutellar acrostichal bristles; intradorsocentral setulae in 10-12 series; scutellum flattened on disc, not transverse at apex, bristles equal; anterior sternopleural short. Abdomen stout. Fore femur with preapical anteroventral comb; preapical tibial bristle present on all legs, weak on hind pair. Inner crossvein a little before middle of discal cell; outer at about half its own length from apex of fifth vein; penultimate section of fourth vein more than three-fourths as long as ultimate.

Length, 3-4.5 mm.

One male, Melville Is., N.T. (G. F. Hill).

SAPROMYZOSOMA EIDSVOLDENSIS, n. sp.

Female.—Head yellowish testaceous, ocellar spot, palpi, and third antennal segment broadly, black; sides of interfrontalia darker than centre; arista dark. Thorax darker than head, largely dark greyish, and with grey pruinescence, centre of dorsum broadly grey, the edges of the grey stripe each with a dark line, a dark brown mark along the inner side of each humeral callosity, faint indications of sublateral vittae posteriorly, and dark brown dots at bases of all bristles and hairs, largest at bases of the bristles; humeri and scutellum yellow testaceous, the scutellum dark on sides, and with two faint discal marks. Abdomen testaceous yellow, with a central spot on each of the apical two or three tergites, and a fascia on the hind margin of each, black, the fasciae roundly widened on each side on dorsum and narrowly connected with the black lateral margin of each tergite below; sternites clay-yellow. Legs testaceous yellow, femora sometimes darkened basally, each femur with a black spot near apex below, opposed to a similar spot

on each tibia near base. Wings hyaline, crossveins very faintly clouded. Halteres yellow.

Frons one-third of the head width, surface with a few short hairs, all bristles long and strong; antennae normal; arista distinctly pubescent; cheek about as high as width of third antennal segment. Thorax with 1 + 3 dorsocentrals, one pair of strong prescutellar acrostichals, and six series of intradorsocentral setulae; both sternopleurals strong, rather closely placed; scutellum flattened, bristles equal. Abdomen normal. Fore femur with weak preapical anteroventral comb; all tibiae with preapical bristle. Inner crossvein almost at middle of discal cell; outer crossvein about half its own length from apex of fifth vein.

Length, 3.75 mm.

Type and two paratypes, Eidsvold, Queensland, 20.4.24 (Bancroft).

SAPROMYZOSOMA FUMIFRONS, n. sp.

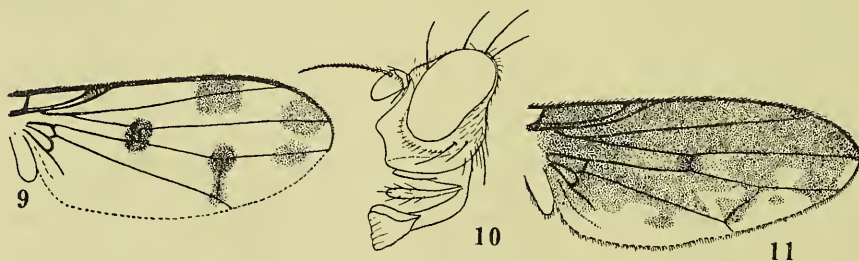
Male and female.—Tawny-yellow, shining. Frons infuscated except on anterior margin, face similarly coloured on sides, and above in centre; antennae fuscous, a little paler sometimes at base of third segment; arista black; palpi yellow. Thorax without markings. Abdomen with the hind margin of each tergite black, all except the first, and sometimes second, in male, entirely infuscated, general colour paler in female. Legs yellow. Wings hyaline, both crossveins and apex of second vein conspicuously clouded with fuscous, the mark on outer crossvein broadest on its upper extremity; the third vein with an almost indistinguishable cloud at apex. Halteres yellow.

All frontal bristles long and strong; orbits poorly differentiated; surface hairs microscopic; antennae normal; arista with its longest hairs not as long as width of third antennal segment; cheek not as high as width of that segment, the hairs fine and short. Thorax with three pairs of strong postsutural dorsocentrals, one strong pair of prescutellar acrostichals, and 6-8 series of intradorsocentral setulae; scutellum flattened, bristles equal; both sternopleurals distinct. Abdomen ovate, bristles weak. Fore femur with weak anteroventral comb; hind femur without distinct anteroventral bristles; tibiae all with preapical bristle. Inner crossvein beyond middle of discal cell; first posterior cell not narrowed at apex.

Length, 4.45 mm.

Type and two paratypes, Como, N.S.W., Dec., 1923; allotype and many paratypes, Waterfall, N.S.W., Jan., 1924 (H. Petersen).

Distinguished from its allies by the dark frons, face, and antennae, and the tripunctate wing.



Text-figure 9.—*Sapromyzosoma preapicalis*, n. sp. Wing.

Text-figure 10.—*Australina geniseta*, n. sp. Profile of head.

Text-figure 11.—*Australina geniseta*, n. sp. Wing.

Genus AUSTRALINA novum. Text-figures 10, 11.

Generic characters.—Runs to *Prosopomyia* Loew in Hendel's key to the genera of this family in "*Genera Insectorum*". It differs from this, and in fact from any related genus in possessing two very conspicuous bristles on a slightly tumid area on lower part of occiput, in having a prominent elevation in centre of face, and the frons very narrow for this family, about three times as long as wide, slightly wider in front than at middle, and not more than one-fourth of the head width. The postvertical bristles are small but distinct, ocellars microscopic, verticals and orbitals long, the latter both curved backward; profile of head as in Figure 10; the arista distinctly pubescent. Thorax as in *Sapromyza*; the presutural dorsocentrals absent; prescutellar acrostichals present. Venation of wing as in Figure 11, the same as in *Sapromyzosoma*. Tibial preapical bristle present.

Genotype, the following species.

AUSTRALINA GENISETA, n. sp. Text-figures 10, 11.

Male and female.—Frons yellowish, densely white dusted except on two narrow submedian longitudinal vittae, ocellar spot fuscous; face, cheeks, and lower half of occiput, black, a grey pruinose mark on each parafacial below base of antennae, and one in centre of face above the protuberance, tip of the latter shining; upper part of cheek behind, including the part upon which the strong genal bristles are situated, yellow; antennae and palpi dusky yellow. Thorax blackish-brown, pale on dorsum, where it is densely whitish-grey dusted and has four dark vittae, the submedian pair paler and narrower than the sublaterals and becoming subobsolete posteriorly; lateral margins of mesonotum dark brown; scutellum yellowish, brown on sides. Abdomen brownish testaceous. Legs black, tibiae and tarsi stramineous. Wings conspicuously marked with dark brown (Fig. 11). Halteres dull-yellow.

Frons with short sparse stiff hairs. Thorax with three pairs of postsutural dorsocentrals, and six series of intradorsocentral setulae; scutellum slightly flattened on disc, the four bristles equal; propleural, mesopleural, and both sternopleural bristles strong, the latter rather closely placed. Hypopygium of male large. Fore femur without an anteroventral comb; hind femur with two or three preapical anteroventral bristles.

Length, 4-4.5 mm.

Type, male, and allotype, Darwin, N.T., the male labelled "on Pandanus", the female has an empty puparium mounted with it, and bears a label as follows: "pupated 6.2.14, emerged 17.2.14, associated with coccids on Pandanus" (G. F. Hill).

As extremely little is known of the habits of the larvae of this family, despite the frequency of the occurrence of the adults, this record is of considerable interest.

The puparium is rufous-brown in colour, and opaque. The anterior extremity is as wide as the average of the whole, distinctly flattened dorsoventrally as in many *Drosophilidae*, the small sessile anterior respiratory organs each have a large number of pale papillae irregularly arranged at their apices. The body surface appears to be devoid of protuberances, at least on dorsum and sides, and the apical three or four segments are much constricted, forming a stout tapered tail, the divisions between the apical slender segments quite pronounced. Posterior spiracles not elevated.

Genus INCURVISETA novum.

Generic characters.—This genus has the anterior pair of fronto-orbital bristles incurved, much as in *Camptoprosopella* Hendel and *Poecilohetaerus* Hendel, but the general habitus and several characters of the chaetotaxy distinguish it from either of these genera. *Poecilohetaerus* has four equally strong dorsocentrals, the anterior pair in front of the suture, and the head is differently shaped. In the other genus there are but two pairs of postsutural dorsocentrals and the arista is plumose, the hairs on the upper side being much longer than those on the under side, while the anterior pair of incurved orbital bristles are very close to the posterior pair, which is not the case in *Incurviseta*. The wing in the latter is the same as in *Sapromyza*, and the arista is pubescent. Sternopleurals two in number.

Genotype, *Sapromyza maculifrons* Macquart.

INCURVISETA MACULIFRONS (Macquart).

I have already recorded this species from Australia. The specimen upon which I based my identification was in rather poor condition, the frontal bristles being partially destroyed, and the wings lacking their tips. I provisionally placed it in the genus *Sapromyzosoma*, but I have seen other species with the same characters as the genotype and have decided that it is entitled to distinct generic status.

Family Ephydriidae.

I defer publishing a generic synopsis of the Australian Ephydriidae until I have seen a better representation of the species. Meantime I present descriptions of some of the genera and species that have been in my possession for some time.

Subfamily NOTIPHILINAE.

This subfamily as treated by most authors contains a large number of genera which are rather unsatisfactorily distinguished from the other groups by the presence of a bristle at apex of second antennal segment. I consider that the presence of strong bristles on the dorsal surface of mid tibia is a more reliable character for distinguishing the group, and if this is accepted the number of known genera will be reduced to less than half a dozen, two of which are represented in material now before me, viz. *Paralimna* and *Notiphila*. I present data on the former below.

Genus PARALIMNA Loew.

Mid tibia with three or four long strong bristles on dorsal surface extending from near base to near apex; thorax in the Australian species with 1 + 3 dorso-central bristles, and a pair of long prescutellar acrostichals which are nearly in line with the anterior pairs of dorsocentrals and appear to belong to that series; mesopleural bristles 1 to 3; sternopleural 1; frons with a pair of long strong bristles proximad of, or in transverse line with, anterior ocellus; arista plumose; face with bristles on sides which are rather far removed from eyes, central elevation quite prominent just below antennal insertions, the antennal foveae quite pronounced.

I present a diagnostic key for the identification of the three species now known to me, none of which I have identified as already described.

Key to Species.

1. Each frontal orbit with one strong backwardly curved bristle at middle, no short bristles between it and eye; the pair of long frontal bristles a little behind anterior ocellus transversely; ocellar and postvertical bristles indistinguishable; each humerus with but one bristle; abdomen without a dark dorsocentral vitta *uniset*a, n. sp.
- Each frontal orbit with a long backwardly curved bristle about middle and between it and eye a pair of much shorter bristles which are forwardly directed; the pair of long frontal bristles distinctly proximad of anterior ocellus; ocellar bristles minute; abdomen with a distinct dorsocentral dark vitta connecting up the dark fasciae 2
2. Thoracic dorsum with a pair of subcontiguous dark central vittae, the large bristles set in dark dots, the fine hairs without dark dots at bases; each humerus with a setula above the strong bristle which is directed mesially; fore tarsi black *atrimana*, n. sp.
- Thoracic dorsum without dark dorsocentral vittae, but with very distinct dark dots at bases of all hairs and bristles; each humerus with but one bristle; fore tarsus with most of basal segment yellow *millepuncta*, n. sp.

PARALIMNA UNISETA, n. sp.

Male.—Head black, densely yellowish-brown dusted; interfrontalia lavender-grey pruinulent, the triangle concolorous with rest of head; antennae and palpi black. Thorax densely tawny-brown pruinulent, paler on sides of mesonotum behind suture. Abdominal tergites greyish pruinulent, bases and apices narrowly brown, the apices very narrowly so. Legs black, femora slightly grey pruinulent. Wings hyaline, veins fuscous. Halteres whitish, stems yellow.

A pair of long parallel forwardly projecting bristles almost in line with the posterior margin of anterior ocellus; but one strong bristle on each orbit proximad of middle, some microscopic hairs in front of bristle and on the anterior margin of interfrontalia; frons wider than long and nearly half the head width; face rather abruptly protuberant below bases of antennae, almost vertical from that point to lower margin; about three bristles and some hairs on each parafacial; arista with about 10 rays above; eye higher than long; cheek not more than one-third of the eye height, genal bristle distinct. Thoracic chaetotaxy normal; intra-dorsocentral hairs very short and fine, in about 10 series; scutellum flattened on disc. Posteroventral bristles on fore femur mostly as long as femoral diameter; anterodorsal setulae on hind tibia distinct. Base of section of costa proximad of apex of first vein with about three outstanding bristles, and one at apex; last section of fourth vein about four-fifths as long as preceding section.

Length, 3 mm.

Type, Fish River, N.S.W., 25.3.1923.

PARALIMNA MILLEPUNCTA, n. sp.

Female.—Black, opaque, densely pale-grey pruinulent. Frons largely dark brown, not spotted, but irregularly suffused; face slightly suffused with paler brown; antennae and palpi black. Thoracic dorsum with dark brown dots at bases of the hairs and bristles, the dots more or less aggregated, those at bases of the strong bristles on mesonotum and scutellum larger and darker; mesopleura with an irregular brown suffusion in middle. Abdomen with a chocolate-brown dorsocentral vitta which is connected with the anterior and posterior fasciae on each tergite, the anterior fasciae narrow in centre and broader on sides; a blackish spot over each spiracle. Legs black, grey dusted, basal segment of fore tarsi and basal two segments of mid and hind pairs yellow. Wings hyaline. Halteres yellowish.

Frons rather noticeably short haired, a pair of bristles almost in line with hind margin of posterior ocelli; interfrontal bristles well in front of anterior ocellus; the two bristles between orbitals and eye short and quite close together; face much as in *uniseta*, but with one moderately long, and one shorter, bristle on each side below tips of antennae, and below and laterad of these some fine hairs; cheek about one-third of the eye height, genal bristle stout; arista with 9-10 rays above. Thorax as in *uniseta*, but the fine hairs less regularly arranged and much more sparse, especially on pleura and sides of mesonotum. Fore femoral bristles sparser and finer, and distinctly shorter than in *uniseta*; hind tibia with a few noticeable posterodorsal setulae. Costa lacking the three or four bristles beyond the basal break which are present in last species.

Length, 5-6 mm.

Type and 3 paratypes, Eidsvold, Queensland; 1 paratype, Narrandera, N.S.W.

PARALIMNA ATRIMANA, n. sp.

Male.—Differs from preceding species in being more lead-grey in colour of the pruinescence; in having the thoracic dorsum with faint dark dots at bases of the large bristles only, a distinct dark dorsocentral vitta; the abdominal markings narrower, no spot over the spiracles; and the fore tarsi entirely black.

The face has three larger bristles on each side, the orbital bristles are longer, there is a fine upcurved bristle above the humeral bristle, and there are one or two costal bristles beyond the basal break as in *uniseta*.

Length, 3-4 mm.

Type and one paratype, Belaringar, N.S.W., 1.6.23; one paratype, Collaroy, Sydney, N.S.W., 29.1.24; three paratypes, Narrandera, N.S.W.; one paratype, Eidsvold, Queensland.

Genus NOTIPHILA Fallén.

This genus is distinguished from *Paralimna* by the shorter costal vein, which ends at, or just beyond, apex of third vein; and the presence of 1 + 2 dorsocentral bristles on thorax. I present below the description of one species.

NOTIPHILA FUSCIMANA, n. sp.

Male and female.—Head black, with brownish-yellow pollen, darker on interfrontalia and triangle in front of anterior ocellus; antennae yellow, third segment brownish above; arista fuscous; palpi yellow. Thorax black, brownish pollinose on dorsum, more greyish and with a slight olive tinge on pleura, mesonotum with a pair of faint, darker, median vittae anteriorly, narrowly separated by a pale line; the bases of the large bristles inserted in small black spots; mesopleura with a brown central mark. Abdomen greyish pruinose, each tergite with four large, irregular, brownish, or fuscous, spots, the bristles and hairs inserted in dark dots. Legs tawny-yellow, coxae, femora except apices, and the fore tarsi fuscous, fore tibiae of male dark apically. Wings hyaline, veins dark. Halteres yellow.

One or two fine hairs in front of the anterior orbital bristle; face with 2 or 3 bristles on lower half, and many fine hairs which extend above middle, of the sides; genal bristle strong. Hind tibia with one or two setulae on basal half of posterodorsal surface. Costa with one long and one short bristle at apex of first vein.

Length, 3-4 mm.

Type, female, Fish River, N.S.W., 25.3.23. Allotype and one paratype, Eidsvold, Queensland; three paratypes, Narrandera, N.S.W. A pair of paratypes from Murray Bridge, S.A., have the dorsum of thorax almost uniformly olive-brown, but do not differ in any other respect from the type material.

There is at least one other species of the genus in my hands yet.

Subfamily EPHYDRINAE.

Genus HYDRELLIA Rob.-Desv.

HYDRELLIA TRITICI Coquillett.

Black, distinctly shining. Frontal triangle and lunule connected, both glossy; orbits shining, a stripe between triangle and lunule, and the orbits opaque velvety-black; face and cheeks silvery-white pruinulent; antennae and palpi black. Thorax with a slight olive tinge on dorsum, a large velvety-black spot on each side in front of wing base; pleura white dusted. Abdomen with a greenish or bronzy tinge, very faintly dusted. Legs fulvous, variably marked with black, the fore tibiae almost or entirely, and fore tarsi entirely black, and mid and hind tarsi dark at apices, sometimes apices of fore femora, bases of mid tibiae and middle of hind tibiae blackish. Wings greyish hyaline. Halteres lemon-yellow.

Frons about half of the head width, broader than long, declivous from middle forward; ocellar bristles minute; postverticals long; upper orbital bristle directed over eye, twice as long as the lower forwardly directed one; face narrowest about midway from antennae to lower margin, with about three bristles on each side; genal bristle fine; cheeks narrow; arista rayed above, bare below. Thorax with two pairs of dorsocentrals, the anterior pair close to suture; mesopleura and sternopleura with one bristle each; scutellum flat above, with four marginal bristles and two short fine lateral marginal hairs. Abdomen slender. Legs slender, fore tarsi flattened a little apically. Inner crossvein about one-fourth to one-third from base of discal cell and a little before or beyond apex of first vein; penultimate section of fourth vein about five-sixths as long as ultimate section.

Length, 2-2.5 mm.

Originally described from Australia, this slender species appears to be very common in New South Wales, as I have many specimens from Botany Bay, Como, and Sydney. The type specimen is in the United States National Museum.

Genus ILYTHEA Haliday.

Generic characters.—Mid tibia without outstanding dorsal bristles; costa to apex of fourth vein; a pair of quite long divergent bristles situated within the ocellar triangle, none on interfrontalia proximad of anterior ocellus; each orbit with two bristles, the upper one sloping backward and outward, the lower one forward; second antennal segment with a short apical bristle; arista long rayed above; face convex, with distinct pruinulence, a short but pronounced protuberance above middle, and a number of long hairs or setulae on sides which stand clear of the narrow parafacials; mouth large; labrum not exposed; genal bristle small. Thoracic chaetotaxy as in *Paralimna*. Venation as in Figure 12, but the outer crossvein usually present.

ILYTHEA DEFECTA, n. sp. Text-figure 12.

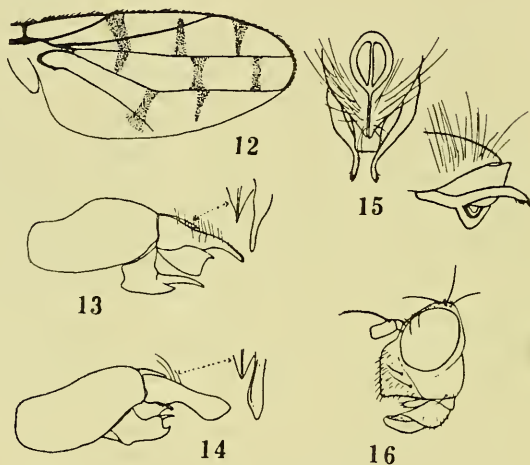
Female.—Shining black, with sparse brownish dusting, that on face more golden-brown and dense. Antennae below, mouth-parts, legs, and halteres dusky yellow. Wings with fuscous markings as in Figure 12.

Each side of face with three or four long setulose hairs, the upper one of each series curved upward, and between them and eyes some short hairs; frons about half the head width, much shorter than wide, concave in front. A few hairs between dorsocentral bristles; basal pair of scutellar bristles shorter than apical pair. Mid femur with two or three anterior bristles on apical half. Outer crossvein absent in type specimen.

Length, 1.75 mm.

Type, Eidsvold, Queensland, 2.4.24 (Bancroft).

This species is very similar to *Ilythea flavipes* Cresson described from Costa Rica, but in it the outer crossvein is present.



Text-figure 12.—*Ilythea defecta*, n. sp. Wing.

Text-figure 13.—*Ephydra breviseta*, n. sp. Male hypopygium.

Text-figure 14.—*Ephydra acrostichalis*, n. sp. Male hypopygium.

Text-figure 15.—*Scatella australiae*, n. sp. Male hypopygium.

Text-figure 16.—*Scatella alticeps*, n. sp. Head.

Genus EPHYDRA Fallén.

I have before me a number of specimens referable to this genus in the widest sense. They differ from the genotype and other European species in having the posthumeral bristle lacking, and the thoracic dorsocentrals, except the posterior two pairs, almost indistinguishable from the hairs. In the former character they are similar to the New Zealand forms which I have seen, but the latter have five pairs of dorsocentrals which are all strong. It may be necessary to erect a new subgenus for the Australian species, of which there appear to be two in my material.

The genus *Ephydra* may be distinguished from its allies by the protuberant bristly face; large mouth-opening; concealed labrum; almost bare arista; two pairs of long outwardly curved orbital bristles; lack of spines on mid tibiae and second antennal segment; costa extending to fourth vein; normal abdomen; almost straight, long, tarsal claws; and minute pulvilli. There are five pairs of dorsocentrals on thorax, and at least one mesopleural and one sternopleural present.

The two species now available may be distinguished as below.

Key to Species.

- | | |
|---|-------------------------------|
| 1. Males | 2 |
| Females | 3 |
| 2. Prescutellar acrostichals not developed | <i>breviseta</i> , n. sp. |
| Prescutellar acrostichals well developed | <i>acrostichalis</i> , n. sp. |
| 3. Prescutellar acrostichal region quite obviously tumid | <i>breviseta</i> , n. sp. |
| Prescutellar acrostichal region not abnormal, regularly convex | <i>acrostichalis</i> , n. sp. |

EPHYDRA BREVISETA, n. sp. Text-figure 13.

Male and female.—Black, frontal triangle, disc of thorax, and most of dorsum of abdomen, shining, with a more or less metallic-greenish lustre, the abdomen sometimes with purple or violet reflections. Frontal and facial orbits and cheeks greyish, centre of face brownish dusted, interfrontalia opaque, blackish; antennae and palpi fuscous. Thorax with lateral margins of mesonotum and four faint discal vittae greyish; pleura greenish-grey dusted. Abdomen except dorsum, and most of legs largely greenish-grey dusted; knees, and mid and hind tarsi, brownish. Wings greyish hyaline. Halteres yellow.

Frontal triangle with all the hairs short. Thorax in male without prescutellar acrostichals, the surface normal, in female with well developed acrostichals which are situated upon an obvious rounded elevation; only the posterior dorsocentrals strong; scutellum short, rounded, convex, the basal bristles shorter than the apical pair. Male hypopygium as in Figure 13.

Length, 5-6 mm.

Type, male, allotype, four male and one female paratypes. Woy Woy, N.S.W., 2.9.23 (Mackerras); one male paratype, Mosman, N.S.W., 24.9.22.

EPHYDRA ACROSTICHALIS, n. sp. Text-figure 14.

Male and female.—Similar to the preceding species, but the dorsum of abdomen less shining, the frontal triangle comparatively narrower, and the male hypopygium as in Figure 14.

Length, 5-6 mm.

Type and allotype, on same mount, Middleton, S.A.

The abdomen of the type male of this species and those of two paratypes of the other were boiled in a 10% solution of caustic potash to facilitate delineation, and afterwards placed on the same mounts with the specimens.

Genus *SCATELLA* Rob.-Desv.

This genus has the head similar to that of *Ephydra*, the orbitals being directed outward over eyes, the face protuberant and setulose, second antennal segment without a spine, arista pubescent, mouth-opening large, labrum not exposed, and genal bristle present. The humeri have no bristles, the dorsocentrals are in two or three pairs, in the latter case the anterior pair are almost in transverse line with a pair of long strong acrostichals which are situated close to suture, this last feature characteristic of the genus. The tarsal claws are not very long, and are distinctly curved, while the pulvilli are well developed. Costa to apex of the fourth vein, wings usually with five or more hyaline spots between the veins, which are most readily seen when the wing is viewed from the base looking obliquely along the surface to apex.

None of the Australian species possess any outstanding structural peculiarities. The hypopygia of the males possess a peculiar feature in this genus, the claspers being connected about middle by a chitinous band which arches below as shown in Figure 15.

I present a key for the separation of the Australian species known to me.

Key to Species.

1. Only two strong pairs of dorsocentral bristles present, the one in line with the strong acrostichals close to suture very weak, represented by fine short hairs . . . 2
Three pairs of strong dorsocentrals present, the anterior pair almost in line with the strong acrostichals close to suture, and as long as or longer than these 4
2. Face silvery-white; cheek about half as high as eye, the genal bristle small and weak; second visible abdominal tergite in male not half as long as third, fourth about twice as long as latter; wings faintly spotted *alticeps*, n. sp.
Face yellowish-brown; cheek much less than half as high as eye, the genal bristle rather conspicuous; second visible abdominal tergite in male not noticeably shorter than third; wings quite distinctly spotted 3
3. All hyaline spots on wings very distinct, the one beyond outer crossvein in first posterior cell almost or entirely divided in middle, showing usually as a small spot against third and another against fourth vein, both these veins distinctly arcuated at that point; scutellum convex; setulae in front of anterior dorsocentrals very weak *nitidithorax*, n. sp.
All hyaline spots on wings faint, the one beyond crossvein in first posterior cell not touching veins, entire, the veins not at all or very faintly arcuated at this point; scutellum flattened on disc; setulae in front of anterior dorsocentrals strong, but much weaker than anterior acrostichals *australiae*, n. sp.
4. Frontal triangle shining, with slight dusting; thoracic dorsum with distinct vittae on anterior half; legs black; wings quite conspicuously spotted *vittithorax*, n. sp.
Frontal triangle not at all shining, densely yellowish-grey pruinose like mesonotum, the latter without vittae; tarsi largely yellowish, darker at apices; wings faintly spotted *immaculata*, n. sp.

SCATELLA ALTICEPS, n. sp. Text-figure 16.

Male.—Frons fuscous, triangle almost glossy, ocellar spot and the narrow orbits opaque-brown; face and cheeks densely white dusted, almost silvery; antennae and palpi black. Thorax black, disc shining, darker on each side, lateral margins and pleura grey dusted; scutellum concolorous with mesonotum, apex slightly white dusted below. Abdomen black, with a slight greenish tinge, only slightly shining owing to the presence of quite dense brown-grey dusting. Legs black, tarsi brownish, femora grey dusted. Wings brownish-grey, the clear spots very faint. Halteres yellow.

Head as in Figure 16; a pair of divergent hairs behind posterior ocelli. Thorax with 3-4 fine hairs before anterior dorsocentrals, three pairs behind and two behind the acrostichals, the hindmost pair closer together than the preceding pair; scutellum slightly flattened on disc, basal hairs short. Fore femoral bristles short and fine; two or three long hairs at base of basal segment of fore tarsus below. Third vein slightly arcuate near middle of apical section.

Type, Collaroy, Sydney, N.S.W., 10.9.21.

SCATELLA NITIDITHORAX, n. sp.

Male and female.—A much darker species than the preceding one, and very like *stagnalis* Fallén of Europe both in structure and wing markings. Face and cheeks yellowish-brown dusted, the thorax more distinctly shining on disc than in *alticeps* and with two rather evident grey dusted vittae anteriorly, the scutellum without grey dust at apex below, pleura brown dusted, abdomen much less dusted and more shining on dorsum, the legs black, and the spots on wings distinct.

The cheeks are not more than one-sixth of the eye height, with a stronger and longer genal bristle than in *alticeps*. Thorax with similar setulae, but there are no postsutural acrostichals in any specimen before me, and the scutellum is not flat, but is convex, on disc. The division of the pale spot in first posterior cell of

wing is coupled with a rather distinct arcuation of third and fourth veins at position of the spot. Fore tarsi of male without fine hairs at base below.

Length, 2.3 mm.

Type, male, allotype, and two paratypes, Sydney, N.S.W.

Two specimens which may belong here or to a closely related species have the spot in first posterior cell complete, and the veins very slightly arcuated.

Localities.—Tarro, Hunter River, and Belaringar, N.S.W.

SCATELLA AUSTRALIAE, n. sp. Text-figure 15.

Male.—A less shining and more brownish species than the last, distinguished as noted in the key. The triangle is very slightly shining; the thoracic dorsum is rather noticeably vittate, and less shining; the postsutural acrostichals are absent; and the third and fourth veins are quite regularly, though slightly, divergent on apical sections. Legs black, fore tarsi without fine basal hairs. Hypopygium of male as in Figure 15.

Length, 2 mm.

Type, Woy Woy, N.S.W., 22.9.23 (Mackerras).

SCATELLA VITTITHORAX, n. sp.

Female.—Somewhat similar to *nitidithorax* in colour and structure, but the frontal triangle is less shining, the thorax more distinctly marked with pale grey lines and dark brown vittae, and less shining. The wings are marked as in that species, but the hyaline spot in first posterior cell is complete, the one in the cell above it is larger, and the veins on either side of both spots are arcuate. Except in the possession of three pairs of strong dorsocentrals the species is similar to *nitidithorax*.

Length, 3.3.5 mm.

Type and three paratypes, Sydney, N.S.W.

SCATELLA IMMACULATA, n. sp.

Male and female.—Black, entirely covered with grey dusting, more yellowish-grey on mesopleura and parts of dorsum of thorax, even the frontal triangle without any gloss. Legs black, grey pruinose, tarsi yellowish, darker at apices. Wings very faintly spotted.

The fore femur has rather longer posteroventral bristles than in the other species, there are no fine outstanding hairs at base of fore tarsus in male, there are sometimes one or two setulae behind the anterior acrostichals, and there is no arcuation of the third vein, nor of the fourth.

Length, 2.2.5 mm.

Type, female, allotype (greasy), and one female paratype, Belaringar, N.S.W., 9.9.23.

Genus *LIMNELLIA* novum.

Generic characters.—Similar to *Scatella* R.-D., differing in having no outstanding pair of acrostichals near suture, these hairs being almost uniform in length on entire extent of the series. The anterior orbital bristle is very much smaller than the posterior outwardly directed one, and is directed more forward than outward; the face is not so much produced and has about six bristles in an evenly spaced lower marginal series, and two or three on each side of the convexity, the central part having only a few short hairs. Otherwise as *Scatella*.

Genotype, the following species.

LIMNELLIA MACULIPENNIS, n. sp. Text-figure 17.

Female.—Head black; frons brown, with a grey pruinulent spot on each side of ocelli at vertex, and three on anterior margin; face white dusted, most noticeably so in antennal grooves and on sides; antennae and palpi fuscous. Thorax and abdomen black, the former opaque-brown dusted, densely so on dorsum which has a pair of submedian vittae and the sides grey pruinulent; pleura largely grey pruinulent; abdomen shining, conspicuously so apically. Legs black, tarsi yellowish. Wings fuscous, with numerous hyaline spots (Fig. 17).

Ocellar, vertical, and upper orbital bristles strong; postverticals absent; arista pubescent; cheek narrow; genal bristle weak. Thorax with two pairs of post-sutural dorsocentral bristles, the acrostichals in two complete series; basal scutellar bristles minute; disc of scutellum flattened. Legs normal.

Length, 1.75 mm.

Type, Sydney, N.S.W., 29.5.21.

Family Phoridae.

In the present paper I present a synopsis of the four species of the genus *Dohrniphora* Dahl known to me at present from Australia. Subsequently I hope to furnish a generic synopsis of the family and keys to the species of each genus I have seen from Australia.

The family is a very widely distributed one and contains some species with very remarkable life histories. The Ant Decapitating Fly of North America (*Apocephalus pergandei* Coquillett), the larvae of which affix themselves to the neck of a certain species of ant, feeding there until they decapitate their host, is among the most interesting biologically, but some of the apterous and semiapterous forms that occur in the nests of ants and termites are amongst the most peculiar in the order in so far as structure is concerned.

Genus DOHRNIPHORA Dahl.

This genus is distinguished by the venation of the wings, lack of a series of bristles on third vein, there being normally only one at base of the vein; presence of two strong bristles at base of mid tibia, and lack of long bristles on hind tibia, those that are sometimes present being very short. The genus belongs in the group which has the postantennal bristles reclinate and the tibiae of at least one pair of legs with strong bristles.

The species known to me are found in the larval stages in carrion, dead molluscs, decaying fungi, and in garbage.

Key to Species.

1. Hind tibiae with several short stout isolated black bristles on anterodorsal and anteroventral surfaces, without short laminate series of bristles on the flattened dorsal stripe; fore tibiae with one long bristle near middle on anterodorsal surface; scutellum with four bristles *setitibia*, n. sp.
- Hind tibiae with at most one or two very short bristles on anterodorsal surface near base, the dorsal surface of same tibiae either not flattened, or if so, then with laminate series of short bristles or setulae 2
2. Hind tibiae with a short bristle near base on anterodorsal surface; thorax and abdomen black, the abdomen with pale hind margins to tergites; scutellum with four bristles *nigrita*, n. sp.
- Hind tibiae without any distinct bristles except at apices 3
3. Scutellum with only two strong bristles; hind tibiae without distinct flattened dorsal stripe, with a rather pronounced dorsal ridge which is evenly setulose; fore tibia with two or three short isolated bristles on anterodorsal surface; thorax and abdomen black *atrata*, n. sp.

Scutellum with four well developed bristles; hind tibiae with very evident dorsal flattened stripe which has numerous laminate series of short black setulae; fore tibia with one long bristle, and beyond it a series of very short setulae, on anterodorsal surface; thorax fulvous-yellow, scutellum black; abdomen fulvous-yellow, conspicuously marked with black *nigroscutellata*, n. sp.

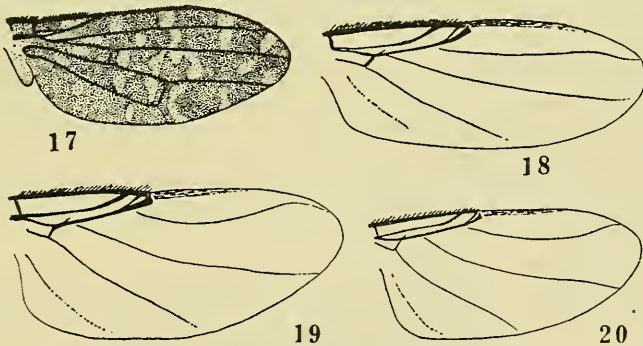
DOHRNIPHORA SETITIBIA, n. sp. Text-figure 18.

Male.—Yellowish testaceous, the head more yellow. Abdomen with a small spot on each side of first tergite, a large transverse spot on each side of tergites 2 to 5 inclusive, and a transverse spot on sixth tergite, black; hypopygium largely dark, the apical process yellow. Mid coxae with a large black mark behind; hind femora hardly darkened apically. Wings brownish hyaline. Halteres dusky-yellow.

Frons longer than wide, subopaque, with numerous piliferous punctures, the postantennal pair of bristles close together, anterior transverse series of four bristles straight, posterior series with the outer one on each side a little in front of median pair; ocellar region black; antennae normal; arista subnude; clypeus produced as far as anterior margin of frons; one bristle close to lower anterior margin of eyes, and two much longer bristles on posterior portion of each cheek; palpi rather large and wide, setulose at apices; proboscis short. Thorax normal; one bristle above and behind, and two below, prothoracic spiracle, and two on lower margin of propleura; scutellum short, slightly rounded apically, the median pair of bristles a little shorter than the lateral pair. Hypopygium smaller than usual, without long bristles on sides. Fore tibia with a stout median bristle, and beyond it a series of very short setulae, on anterodorsal surface; mid tibia normal except in having one or two very short stout setulae near middle on anterodorsal surface, the dorsal surface flattened and with a few microscopic hairs; hind femur normal; hind tibia flattened on dorsum, with some microscopic hairs on flat part, and three or four anterodorsal and anteroventral bristles which are not longer than the tibial diameter. Wing as in Figure 18.

Length, 3.5 mm.

Type, Sydney, N.S.W., June, 1921.



Text-figure 17.—*Limnella maculipennis*, n. sp. Wing.

Text-figure 18.—*Dohrniphora setitibia*, n. sp. Wing.

Text-figure 19.—*Dohrniphora nigrita*, n. sp. Wing.

Text-figure 20.—*Dohrniphora atratula*, n. sp. Wing.

DOHRNIPHORA NIGRITA, n. sp. Text-figure 19.

Male.—Shining black. Antennae except apex of third segment, the palpi, and proboscis, fulvous-yellow. Abdomen opaque-black, the apices of tergites narrowly clay-coloured. Legs obscure tawny-yellow. Wings greyish hyaline, slightly infuscated on apical half of costal margin. Halteres yellow.

Frons wider than long, the setigerous punctures sparse in centre, postantennal bristles strong and divergent, the frontal bristles as in previous species; head otherwise as in that species. Thorax differing from last in having about four bristles on lower margin of propleura, and the median pair of scutellar bristles longest. Hypopygium large, with a few long fine lateral bristles. Fore tibia as in *setitibia*; mid tibia without the short anterodorsal setulae; hind tibia with but one subbasal short bristle, and with many series of diagonal laminate setulae on the flattened dorsal stripe. Wing as in Figure 19.

Length, 3.5 mm.

Type, Sydney, N.S.W., 28.10.23.

DOHRNIPHORA ATRATULA, n. sp. Text-figure 20.

Male.—Black, shining. Antennae fuscous, palpi yellow. Abdomen with very faint pale hind margins to tergites. Legs fuscous, more yellowish on fore coxae and tibiae and tarsi. Wings greyish hyaline. Halteres yellow.

Frons subquadrate, slightly, evenly convex, almost impunctate, and sparsely haired, bristles as in previous species, but the upper series practically straight, head otherwise much as in *nigrita*. Thorax with two bristles on lower margin of propleura, the scutellum with a strong bristle on each side, and basad of each of these a weak short hair. Fore tibia with two or three short anterodorsal bristles; hind tibia without a flattened dorsal stripe; these characters link the species with *mordax* Brues, described from Formosa, to which it is closely allied, but it differs very strikingly in colour from that species. Wing as in Figure 20.

Length, 1.75 mm.

Type, Sydney, N.S.W., 8.1.23.

DOHRNIPHORA NIGROSCUTELLATA, n. sp.

Male and female.—Fulvous-yellow, shining. Head black, antennae, face, palpi, and sides of mouth, yellow. Scutellum subopaque-black, the dark colour at times suffusing hind part of mesonotum and postnotum. Abdomen in male with paired black dorsal spots, which sometimes unite centrally leaving only the hind margins of the tergites yellow or testaceous; hypopygium black, apex of apical process yellow; in female the basal two or three tergites are fulvous-yellow, the remainder opaque-black, the black part without distinct chitinous plates on dorsum. Legs yellow, hind femora sometimes dark at apices posteriorly. Wings yellowish, their apices more or less infuscated.

Head similar to that of *nigrita*; the clypeus of female produced, and proboscis of same sex chitinous and elongated as is usual in females of this genus. Other characters much as in *nigrita*.

Length, 2.5-3.5 mm.

Type, male, allotype, 3 male and 1 female paratypes, Sydney, N.S.W.

Family Drosophilidae.

LEUCOPHENGIA FLAVOHALTERATA, n. sp.

Male.—Head testaceous-yellow, ocellar spot, upper half of frontal orbits, occiput except its lower third, and palpi, fuscous; frons reddish-brown posteriorly. Thoracic dorsum reddish-brown, darker behind; pleura stramineous; scutellum

fuscous, the apex narrowly yellow margined; postnotum fuscous. Abdomen shining black, base of first complete tergite yellow, that of second with a large transverse yellow spot on each side of anterior margin, broad at lateral curvature, not extending to lateral margins, and almost obsolete, or connected by a mere line, centrally; fifth tergite with a yellow central mark. Legs stramineous, knees of mid and hind pairs inconspicuously brownish. Wings brownish hyaline, costa quite obviously brown, most distinctly so at apex of first vein and along costa for some distance before apex of second vein. Halteres pale yellow.

Frons about one-third of the head width, narrower anteriorly; palpi not widened; facial carina subobsolete. Thorax normal. Wing normal.

Length, 2.5 mm.

Type, Cronulla, N.S.W., December, 1924; paratype, Waterfall, N.S.W., January, 1925 (H. Petersen).

This is the only Australian species known to me in which the wings are marked and the halteres unicoloured yellow.

Family Agromyzidae.

Subfamily OCHTHIPHILINAE.

PSEUDOLEUCOPIS FASCIVENTRIS, n. sp. Text-figure 21.

Male.—Black, densely whitish-grey pruinulent. Antennae and palpi black; frons entirely pruinulent. Thorax not vittate. Abdomen with a broad deep black fascia on basal half of each tergite which does not extend over the lateral curve, these fasciae very conspicuous when the abdomen is viewed from directly above, and from in front they appear greyish-brown and but little darker than the grey portions of tergites. Legs black, basal segment of fore tarsi and basal two segments of mid and hind tarsi yellow. Wings hyaline. Halteres yellow.

In structure and chaetotaxy similar to the two known species of the genus, but the third antennal segment is quite sharply angulate on upper apical extremity, and evenly rounded below.

Length, 2.5 mm.

Type and two paratypes, Waterfall, N.S.W., January, 1925 (H. Petersen).

A slightly larger male from Cronulla, N.S.W., taken in December, 1924, by the same collector, has the abdominal fasciae continued over the lateral curves of tergites to, or almost to, the extreme lateral margins of tergites. In other respects it agrees very well with the type, though it may represent a distinct species.

Both the previously described species have the abdomen shining-black, with only faint brownish dusting when seen from behind.

The subfamily Ochthiphilinae is very similar to Sapromyzidae, but in no species of the former are there distinct preapical tibial bristles, the arista is never plumose, and the mesopleura is normally bare.

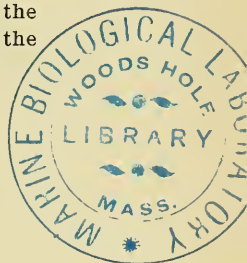
Family Chloropidae.

Subfamily BOTANOBIINAE.

Genus *BATRACHOMYIA* Skuse.

Generic characters.—Differs from the other Australian genera in the sub-family in having the mesopleura with numerous long soft hairs on upper posterior part.

Two new species of this genus are in the material before me from Australia, and I have beside me two others from Tasmania. The species are very much the same in structure, but differ markedly in colour. I give below a diagnosis of the characters for distinguishing the new species from Australia.



Synopsis of Species.

- A. Third antennal segment entirely, or almost entirely, deep black; hairs on femora nearly all black *atricornis*, n. sp.
 AA. Third antennal segment, palpi, and all femoral hairs yellow *flavicornis*, n. sp.

BATRACHOMYIA ATRICORNIS, n. sp.

Male and female.—Head orange-yellow, with slight whitish or yellowish dusting, opaque, a large spot over ocelli and the third antennal segment black; palpi black or yellowish. Thorax brownish testaceous, shining, with slight traces of darker dorsal vittae, pleurae and postnotum nowhere black. Abdomen con-colourous with thorax, paler basally, dark brown apically. Legs a little paler than the thorax. Wings greyish hyaline, slightly tinged with yellowish-brown basally. Hairs mixed, black and yellowish, those on femora mostly black, dorsum of thorax usually with a central stripe of pale hairs. Halteres fulvous.

Vertex projecting behind posterior level of eyes when seen from above, the posterior ocelli a little behind level of eyes, the declivitous part of occiput as far behind these as they are from anterior ocellus; entire frons with rather dense erect black hairs; eyes higher than long, hairs pale; cheek fully as high as third antennal segment, pale-haired below, vibrissal angle black-haired; antennae small, third segment higher than long; arista thick basally, densely clothed with microscopic appressed black pubescence. Dorsum of thorax rather densely haired, the surface appearing slightly punctate, notopleural region devoid of fine hairs but with four or more fine black bristles posteriorly; scutellum thick and convex, almost bulbous, haired as mesonotum and without differentiated bristles. Abdomen ovate, quite densely haired. Legs stout, hairy; sensory area on hind tibia distinct. Wings large, venation as in Figure 21.

Length, 5.5-7 mm.

Type, allotype, and two paratypes, Sydney, N.S.W., 14.9.24, and 6.10.24.

The two taken on latter date have the palpi yellowish, but I can distinguish no other differences between them and the others. The type has the palpi black.

BATRACHOMYIA FLAVICORNIS, n. sp.

Male.—A paler species than *atricornis*. In addition to the characters listed in the key, it differs in having the ocellar dark spot smaller, not extending beyond the ocelli, and less intensely black; the hairs on cheeks are all pale; the vertex is not so much extended backward; the ocelli are slightly proximad of the hind margins of eyes; there is a large black mark on the sternopleura; and the apical hairs on scutellum are more differentiated.

Length, 6 mm.

Type, Kosciusko, N.S.W., 7.12.22 (Nicholson).

The two Tasmanian species of the genus will be described in a paper dealing with the Chloropidae of that island which is now ready to send to the press.

Genus *BENJAMINELLA* novum.

Generic characters.—Most closely related to *Cestoplectus* Lamb, having the frons above antennae and in front of frontal triangle depressed or flattened, the front of head being almost vertical from anterior portion of triangle to mouth in the male, less obviously so in female, with a slight convexity in profile only at antennae in the former sex. The distinctions between this genus and *Cestoplectus* are as follows: each orbit with three or four short black bristles, none in *Cestoplectus*, notopleura with one anterior and one posterior bristle, not

two posterior; thorax with one pair of prescutellar dorsocentrals, not none; second and third wing veins bare, haired either above or below in *Cestoplectus*.

Genotype, the following species.

BENJAMINELLA ALBIFACIES, n. sp. Text-figure 22.

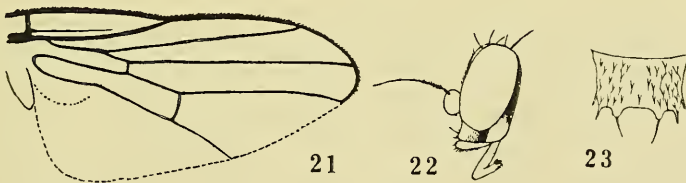
Male and female.—Frontal triangle, the section of frons between same and eye on its hind section, and occiput except lower third black, declivitous part of frons, and the antennae lemon-yellow, face and palpi white, the colours not so strikingly contrasted in females; proboscis and cheeks yellow, the latter with a large reddish mark on anterior half; arista black; cephalic hairs yellow. Thorax glossy-black, humeri mostly yellow, notopleural margin whitish-yellow, postalar callosity and tip of scutellum yellow. Abdomen black, yellowish at base and below. Legs black; coxae yellowish in part, tibiae apically, and tarsi basally, brownish-yellow. Wings hyaline. Knobs of halteres yellowish-white.

Vertical bristles rather pronounced, ocellar pair minute; triangle broad, ocellar region elevated; declivitous part of frons with a depressed central line; lunule transverse; antennae spread apart sideways in male, third segment orbicular; arista very slightly pubescent, fully as long as declivitous part of frons; profile as in Figure 22; palpi quite large, slender. Mesonotum with quite dense short decumbent black hairs; scutellum semicircular, disc haired as mesonotum, with two long and two short marginal bristles. Abdomen tapered apically, male hypopygium quite large, the left clasper long and slender, curved across ventral surface. Legs slender, normal. Wings normal for the group, inner crossvein a little before apex of first vein; second section of costa fully twice as long as third; last section of fifth vein distinctly longer than penultimate section of fourth, and twice as long as outer crossvein.

Length, 2 mm.

Type, male, and allotype, Sydney, N.S.W., 29.10.24, and 28.9.24. Paratype male, Wilmot, Tasmania, 8.1.23 (A. Tonnoir).

The genus is named in honour of Dr. Marcus Benjamin, editor of the Proceedings of the United States National Museum.



Text-figure 21.—*Pseudoleucopis fasciventris*, n. sp. Wing.

Text-figure 22.—*Benjaminella albifacies*, n. gen. et sp. Head of male, in profile.

Text-figure 23.—*Tricimba scutellata*, n. sp. Scutellum from above.

Genus *TRICIMBA* Lioy.

TRICIMBA SCUTELLATA, n. sp. Text-figure 23.

Male.—Shining-black; frons, except the triangle, opaque, its front margin, face, cheeks, palpi, and antennae except upper margin of third segment, testaceous-yellow; lateral margins of mesonotum and upper half of pleura in middle, slightly grey pruinulent; dorsum of abdomen brownish; legs yellow; wings hyaline; halteres yellow, knobs whitish.

Frons fully half of the head width, with short stubbly bristles, triangle broad, smooth, extending fully to middle of frons; eyes hairy; antennae short, third segment higher than long; arista slender, microscopically pubescent, second segment more than four times as long as thick and about one-third as long as third; face not carinate in middle; vibrissal angle very little produced, cheek about one-seventh of the eye height; proboscis geniculated, but not slender. Thorax with the three impressed longitudinal lines consisting of single series of punctures, the bristles and hairs luteous; scutellum as in Figure 23. Legs normal. Second costal division about 1.5 as long as first, third about as long as first; penultimate section of third vein equal in length to penultimate section of fourth and about half as long as ultimate section of fifth.

Length, 1 mm.

Type, Sydney, N.S.W., 9.8.24.

Distinguished from *carinata* Malloch by the smaller size, noncarinate face, shape of scutellum, etc.

Genus *BOTANOBIA* Lioy.

This generic name has been used by several writers on the family to supplant *Oscinis* of authors, not Latreille, the latter's genus belonging to the subfamily Chloropinae. Becker proposed for the same purpose the new generic name *Oscinella*. European authors generally disregard Lioy's work and Becker does not accept *Botanobia*. Which name is really valid has not been definitely decided, and this is not the place to discuss the matter, but the concepts are the same.

The genus has the costa continued to apex of fourth vein; scutellum normal in form and armature; hind tibia without a curved apical spine, and with distinct sensory area; only one or two pairs of posterior dorsocentrals on mesonotum; arista pubescent or bare; proboscis not slender or conspicuously geniculated.

The most widely distributed and common genus of the family. Some of the species, such as *frit* Linn., are of considerable economic importance, feeding in the larval stages in the stems of cultivated grains and grasses.

I present descriptions of two outstanding species in this paper, intending to supplement this with descriptions of all the Australian species and a full specific synopsis in a future paper.

BOTANOBIA *NIGROANNULATA*, n. sp.

Female.—Head yellowish testaceous, frons and antennae more yellow, centre of occiput broadly black, with a black central stripe extending upward to the large black ocellar spot; inner mouth margin black on sides. Thorax yellow testaceous, with five dorsal black vittae, the median one broad, tapered posteriorly, not extending to hind margin, and connected broadly with the narrower submedian vittae in front of suture, these also not extending to hind margin; lateral vittae not extending in front of suture; pleura with a spot at anterior spiracle, a stripe over lower margin of mesopleura and pteropleura, the lower half of sternopleura, and a mark on hypopleura, black; scutellum black on disc; postnotum black. Abdomen pale testaceous-yellow, each tergite black on apical half or more. Legs testaceous-yellow, a spot on base of fore coxa, a broad ring on middle of each femur, a band near apices of fore and mid tibiae, and apical half of hind tibia, apical three segments of hind and apical two segments of mid tarsi black. Wings clear. Halteres yellow.

Frontal triangle not extending beyond middle of frons; surface hairs on frons numerous and black; eyes hairy; arista with very short pubescence; cheek not as high as width of third antennal segment. Thorax quite densely short-haired;

prescutellar acrostichals lacking; scutellum sparsely haired, with four distinct bristles. Legs rather slender, apices of hind tarsi slightly broadened. Outer cross-vein about twice its own length from inner, and more than that from apex of fifth vein.

Length, 2.75 mm.

Type, Sydney, N.S.W., 21.9.24. Paratype, Sydney, 6.11.21.

The paratype has the median and submedian thoracic vittae extending to hind margin, and the fore and mid tarsi more infuscated than in type.

BOTANOBIA DILATA, n. sp.

Male and female.—Similar to the preceding species. Differ as follows: Disc of thorax normally with the black vittae fused, the scutellum less broadly black; pleura with a greater amount of black; the annuli on legs very much reduced, usually mere spots on one surface only, often absent on tibiae, the apical black part of hind tarsi more intense, and not extending to base of third segment; and the apices of palpi and third antennal segment are infuscated.

Structurally similar to preceding species, but the apices of hind tarsi are more conspicuously dilated.

Length, 2-2.75 mm.

Type, allotype male, one male and two female paratypes, Sydney, N.S.W., October and November, 1924; one female, 24.2.25.

Family Muscidae.

Subfamily ANTHOMYIINAE.

Genus *FUCELLIA* Rob.-Desv.

In a recent lot of material sent to me by Dr. Ferguson there is a male specimen belonging to a species of this genus. I did not include *Fucellia* in my key to the genera of this subfamily in a recent paper because its occurrence in Australia was unknown to me.

The genus may be distinguished from all three previously listed Australian genera of the subfamily by the equally wide frons in both sexes, which occupies one-third of the head width, and has a pair of cruciate interfrontal bristles in both. There is a series of short, but distinct, rather widely spaced bristles on the underside of the costal vein from apex of first vein to about apex of second, a character which is very rare in Muscidae; there are no distinguishable fine hairs on the under surface of the scutellum, a very rare character in the subfamily Anthomyiinae. The hind tibiae have at least three posterodorsal bristles, the lower calyptra is not produced as far as the upper, and the arista is subnude.

The larvae usually feed upon seaweed, but one species destroys the eggs of a small marine fish, the Grunion, occurring on the Pacific coast of North America, which are deposited in the sand in a peculiar manner at high tide so that they are well above the normal high water mark. Adults of many species are very common on the seashore in most parts of the world, though they also occur on the shores of lakes and rivers many miles from the sea.

FUCELLIA MARITIMA Haliday.

This species is distinguished from its allies by the presence of a setigerous process at base of hind femur below in male, and the yellowish palpi and tibiae in both sexes.

Length, 5-6.5 mm.

A very widely distributed species in temperate regions. The specimen before me is from Sydney, N.S.W., January, 1925.

Subfamily PHAONINAE.

LIMNOPHORA NARRANDERAE, n. sp.

Male.—Black, densely lead-grey pruinulent. Frons when seen from behind with the triangle and orbits grey pruinulent, the interfrontalia opaque black. Thoracic dorsum in type with a partial dark brown central vitta, the lateral vittae absent; scutellum with a small brown spot at base in centre, this mark probably variable. Abdomen with a pair of irregularly subtriangular, fuscous spots on each of the first three visible tergites, which extend over their entire length, but are linear anteriorly on each segment, these spots hardly visible on fourth tergite. Legs black. Wings hyaline. Halteres yellow. Calyptra white.

Frons at vertex about one-third of the head width, narrowed anteriorly, orbits narrow, with an inner series of strong bristles and numerous long erect lateral hairs; parafacials linear in middle; vibrissal angle hardly produced; cheeks with numerous long hairs, some hairs above vibrissae; antennae extending about three-fourths of the distance to mouth; arista with some distinct hairs basally which are about as long as its basal width; cheek almost linear; eye about twice as high as long. Thorax with 2 + 3 dorsocentrals; numerous erect hairs on disc, about six series between the dorsocentrals. Abdomen narrowly ovate. Fore tibia without median posterior bristle; mid tibia with one posterior median bristle; hind femur without distinct ventral bristles; hind tibia with one anteroventral and one anterodorsal bristle. Penultimate section of fourth vein barely longer than outer crossvein and about half as long as ultimate section; first vein bare; first posterior cell slightly narrowed apically.

Length, 4.5 mm.

Type, Narrandera, N.S.W., 24.3.25.

This species will run down to *divergens* Malloch in my recently published key to the species of this genus. It is readily distinguished from that species by the more conspicuously haired orbits; distinct hairs on the arista; less produced vibrissal angle; much more conspicuously haired and less evidently marked dorsum of thorax; uniformly grey scutellum, which in *divergens* is largely velvety-black; less clearly defined abdominal spots; and unclouded crossveins of wings. The anterior intraalar in *divergens* is strong, whereas in the new species it is absent.

Subfamily LISPINAE.

LISPA UNISETA Malloch.

I described this species from the female only. In a recent lot of specimens Dr. Ferguson sent two specimens of each sex thus enabling me to characterize the male. This sex will run to caption 7 in my recently published key to the species of the genus. It is readily distinguished from both species included there by the presence of but three strong pairs of dorsocentrals on thorax (1 + 2); the armature of hind femur, which consists of two or three short fine bristles on basal half of anteroventral and posteroventral surfaces; and the colour of the apices of mid tibiae, which are whitish. The females have this last feature less distinct.

Length, 5-5.5 mm.

Localities, Narrandera, N.S.W., 24-25.3.25; and Gunnedah, N.S.W., 1.5.25.